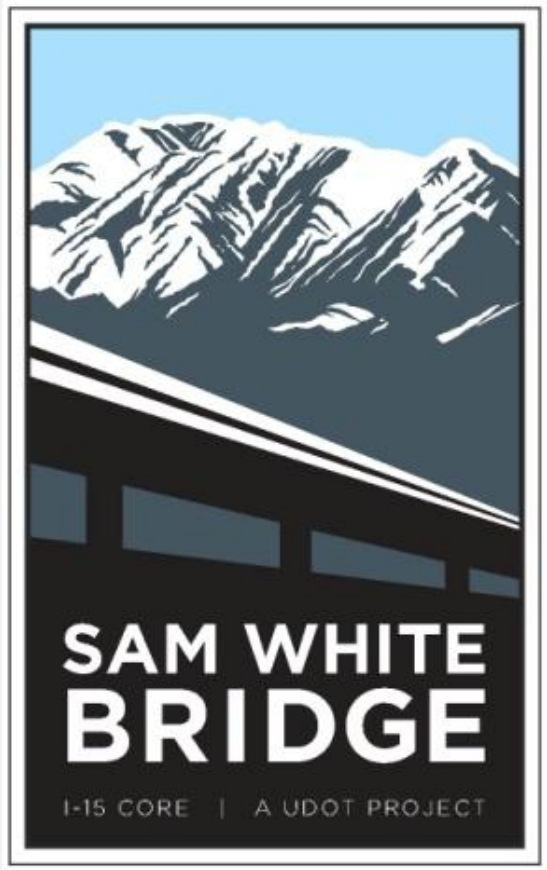
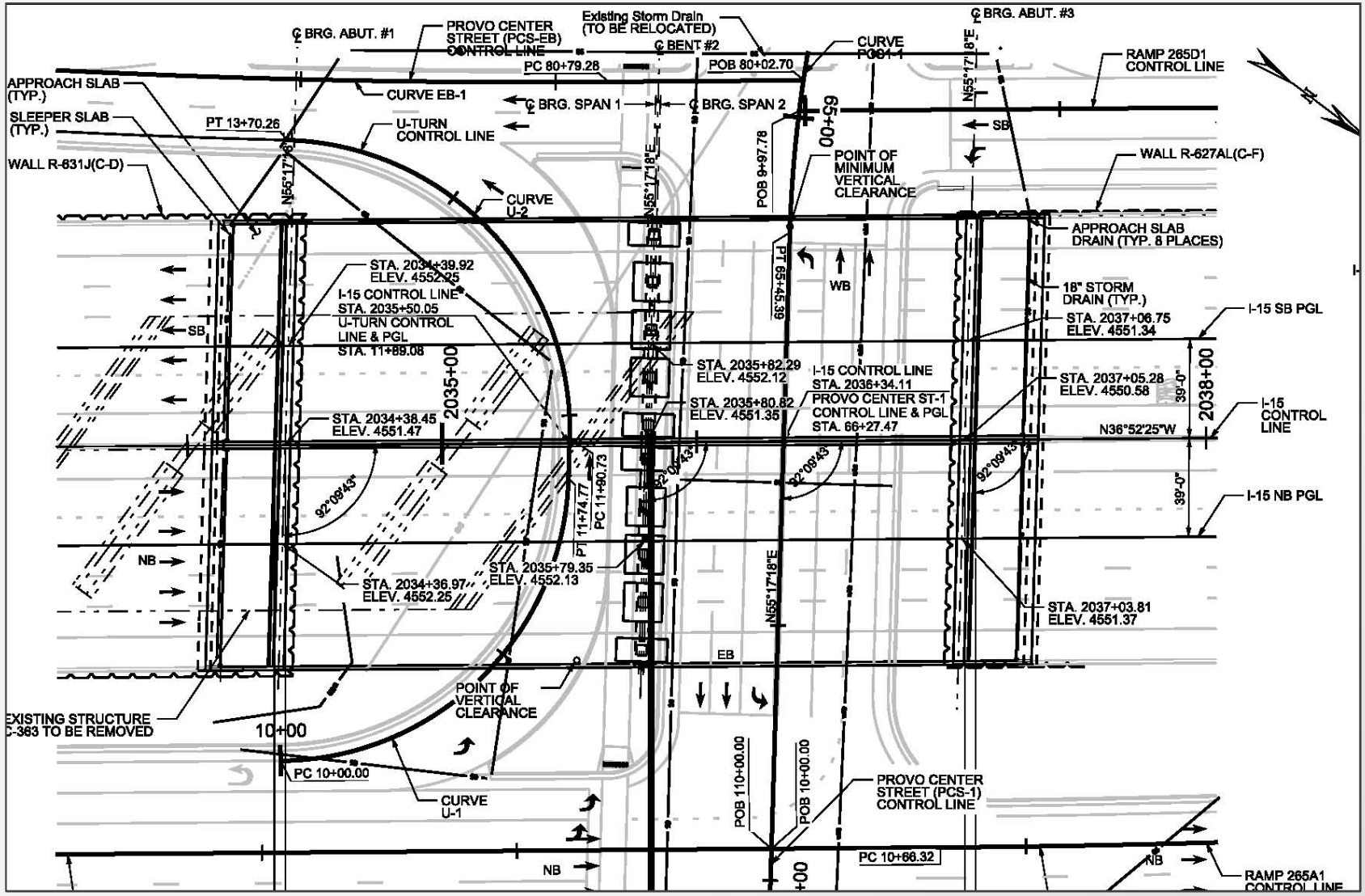


I-15 CORE Design-Builder Perspective
Provo River Constructors (PRC)
Provo Center Street

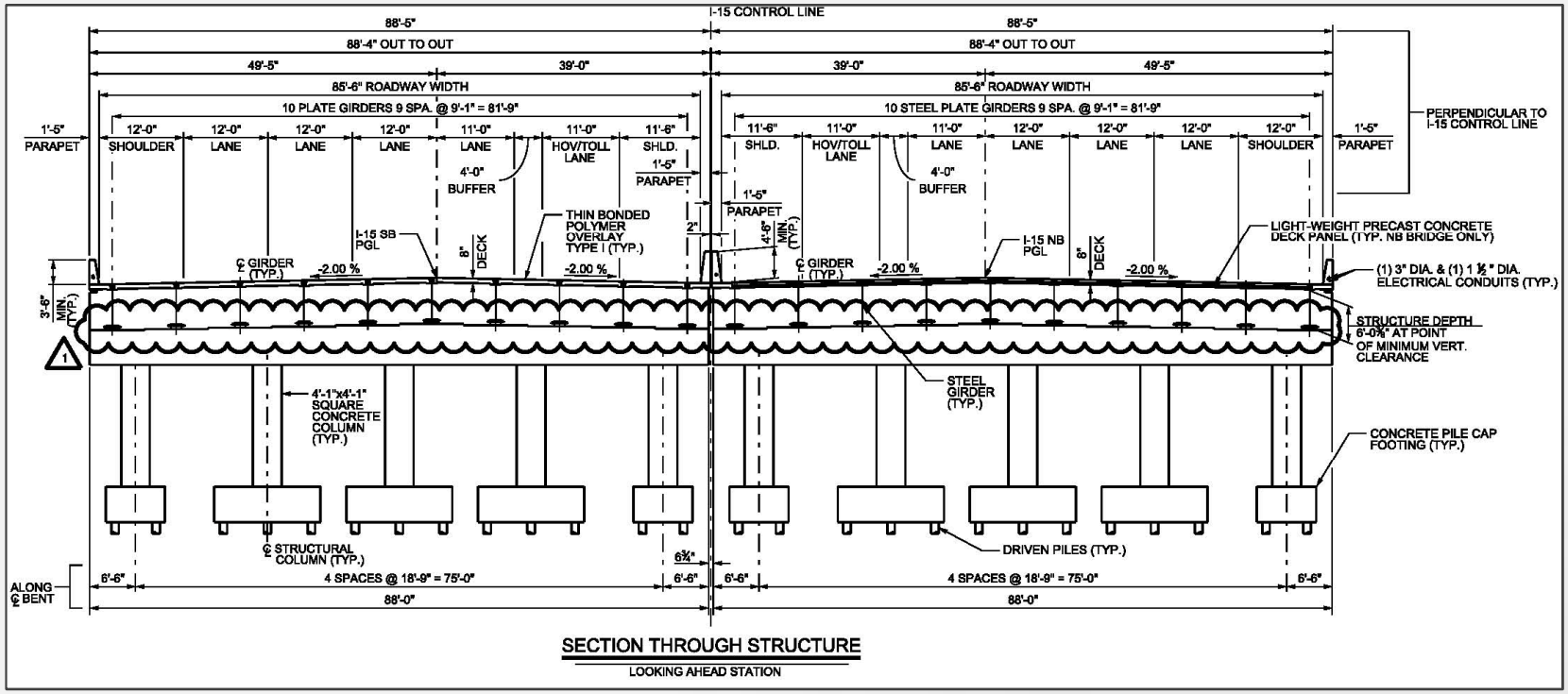
Boyd Wheeler, P.E.; Structures Designer

SAM WHITE BRIDGE
I-15 CORE | A UDOT PROJECT

Plan



Elevation


I-15 CONTROL LINE
88'-5"
88'-4" OUT TO OUT
49'-5"
39'-0"
85'-6" ROADWAY WIDTH
10 PLATE GIRDERS 9 SPA. @ 9'-1" = 81'-9"
10 STEEL PLATE GIRDERS 9 SPA. @ 9'-1" = 81'-9"
1'-5" PARAPET
12'-0" SHOULDER
12'-0" LANE
12'-0" LANE
12'-0" LANE
11'-0" LANE
11'-0" HOV/TOLL LANE
11'-6" SHLD.
4'-0" BUFFER
THIN BONDED POLYMER OVERLAY TYPE I (TYP.)
I-15 SB PGL
I-15 NB PGL
8" DECK
2"
4'-6" MIN. (TYP.)
℄ GIRDER (TYP.)
-2.00 %
3'-6" MIN. (TYP.)
LIGHT-WEIGHT PRECAST CONCRETE DECK PANEL (TYP. NB BRIDGE ONLY)
(1) 3" DIA. & (1) 1 ½" DIA. ELECTRICAL CONDUITS (TYP.)
STRUCTURE DEPTH 6'-0⅝" AT POINT OF MINIMUM VERT. CLEARANCE
PERPENDICULAR TO I-15 CONTROL LINE
STEEL GIRDER (TYP.)
4'-1"x4'-1" SQUARE CONCRETE COLUMN (TYP.)
CONCRETE PILE CAP FOOTING (TYP.)
℄ STRUCTURAL COLUMN (TYP.)
DRIVEN PILES (TYP.)
6¾"
6'-6"
4 SPACES @ 18'-9" = 75'-0"
88'-0"
ALONG ℄ BENT
SECTION THROUGH STRUCTURE
LOOKING AHEAD STATION

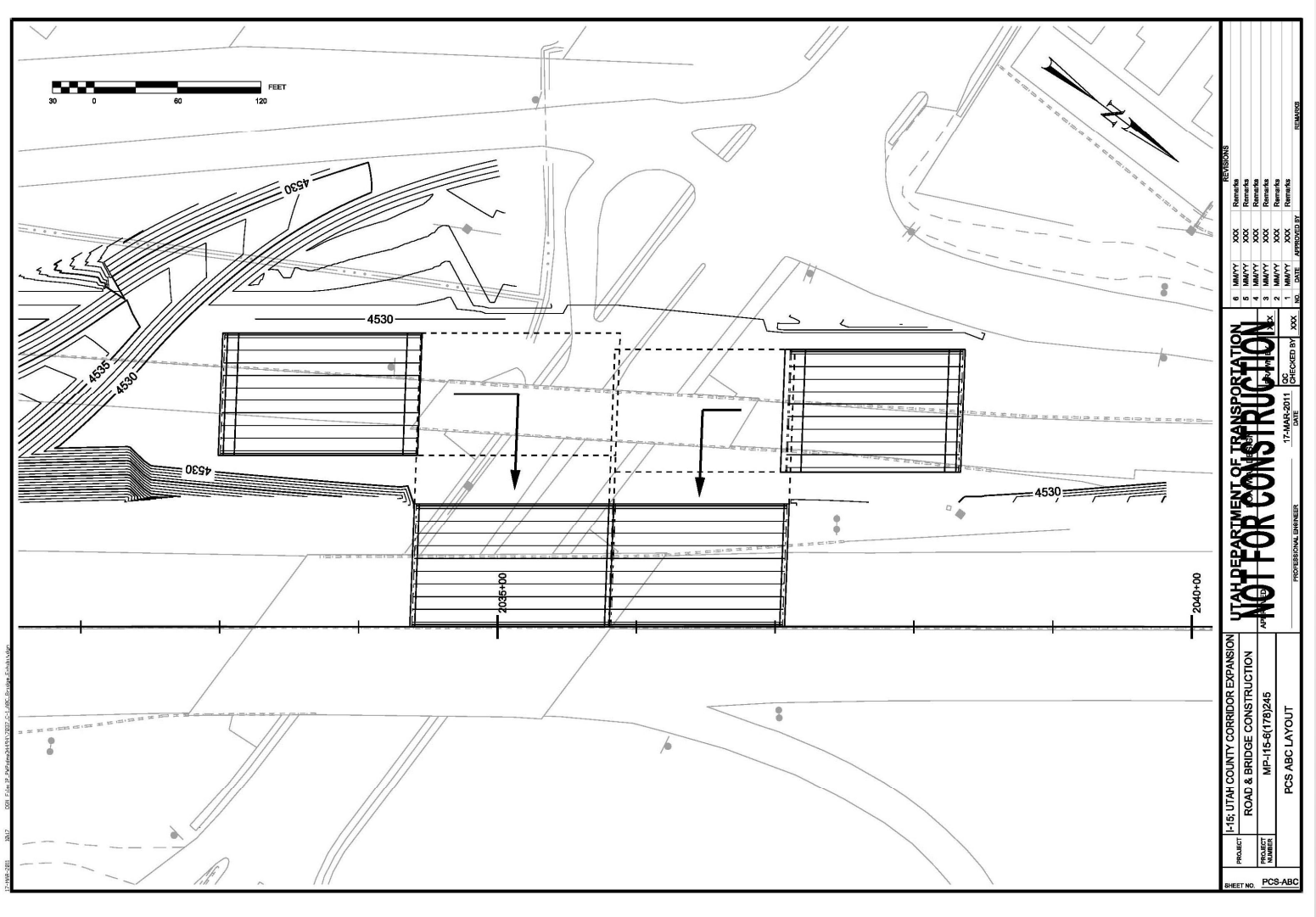
Site Constraints

- High voltage overhead power lines
  - Minimal vertical clearance
- Temporary staging location
  - Area constrained (not large enough to build continuous 2-span bridge)
  - Provo Center Street open during construction

Overhead Power Lines

Provo Center Street Open

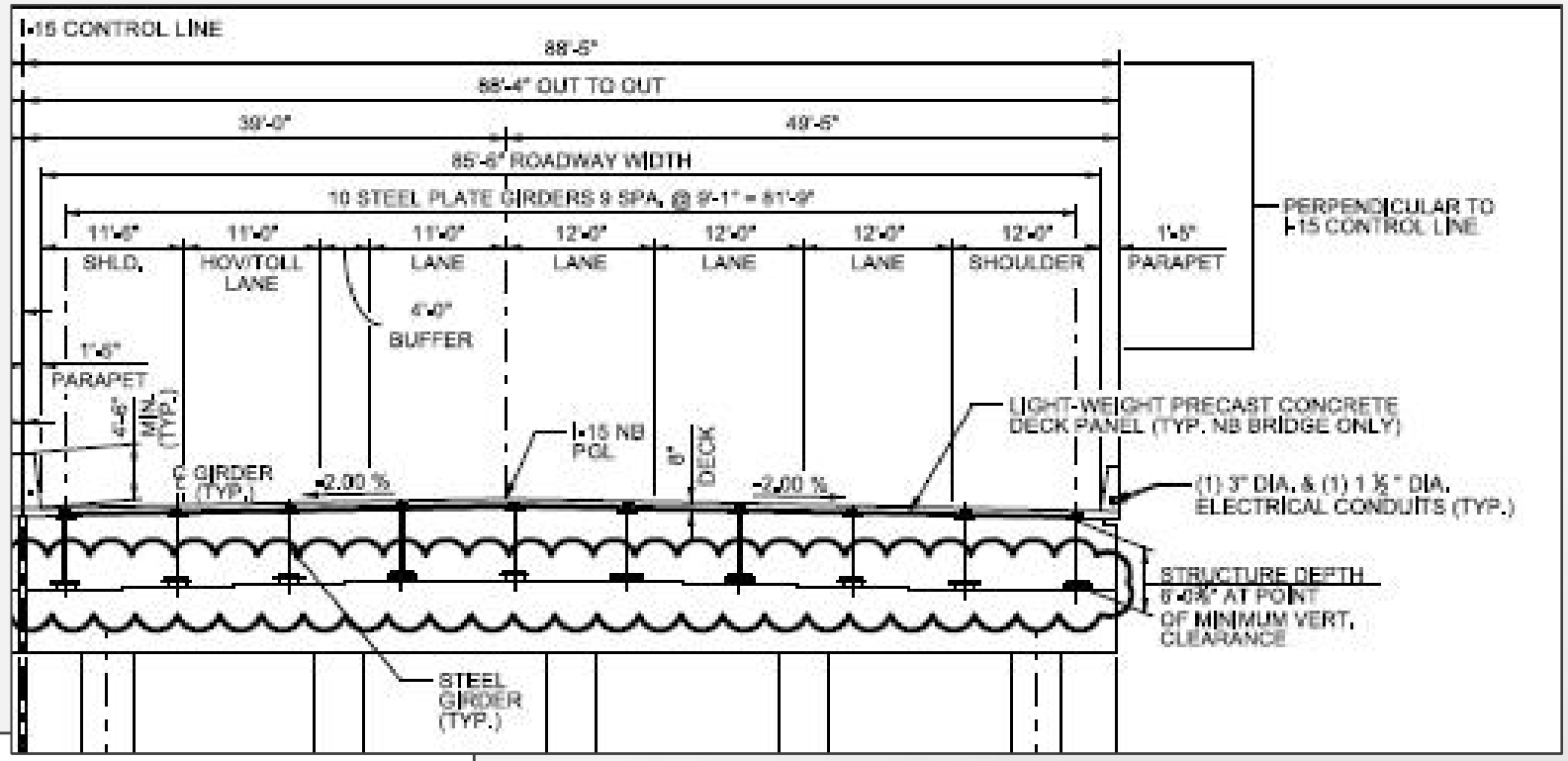
Roll In Approach

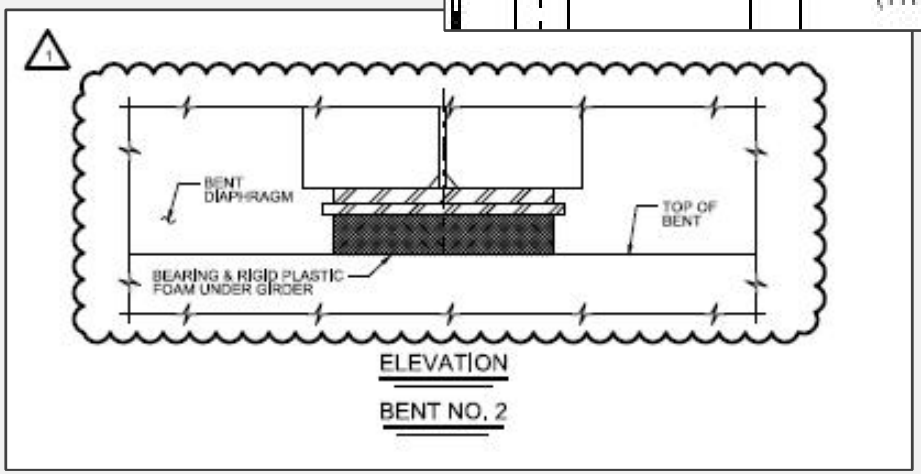


Coordination

- Girder bearing details
- Temporary abutment design
- Lift plan – locations, limits
- Relationship between temporary supports and final supports
- Travel path at time of bridge move

Girder Bearing Details



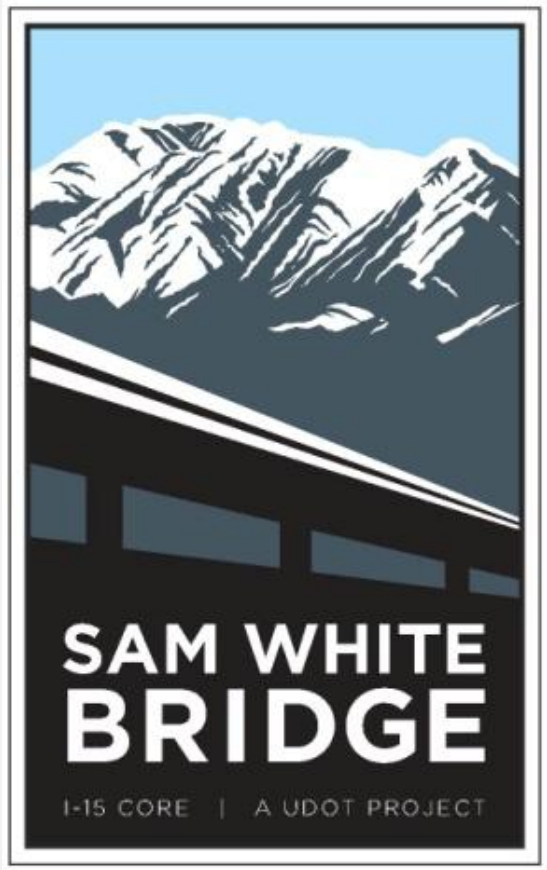


Temporary Support Details

Temporary Abutments

Temporary Abutments

Coordination of Pick Points



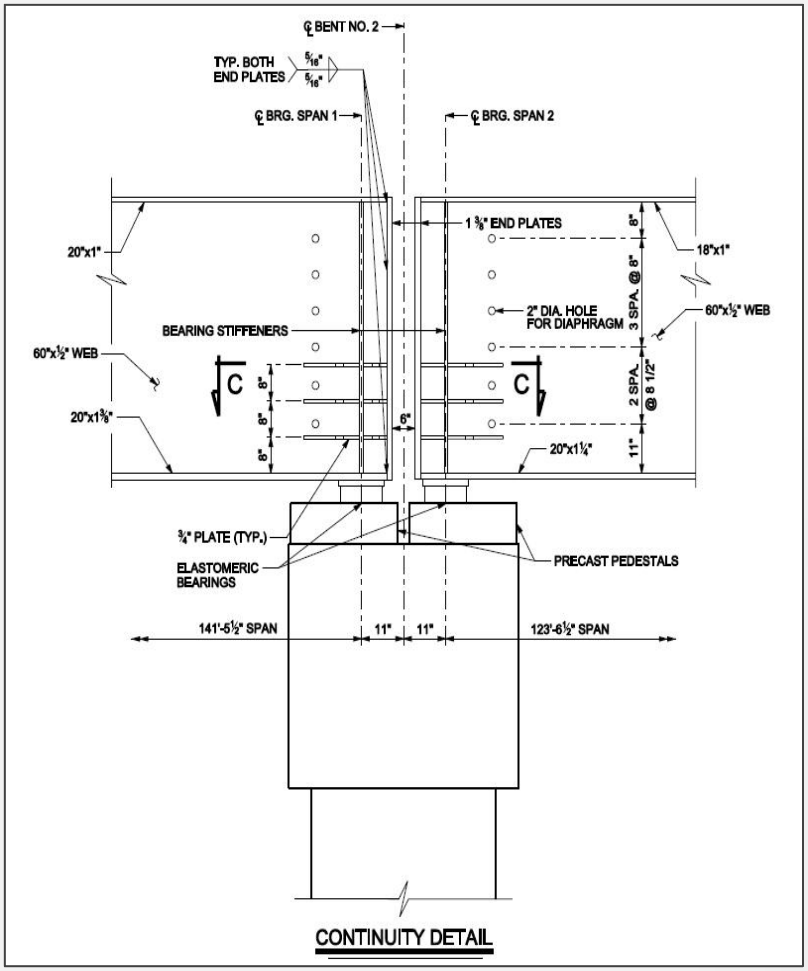
I-15 CORE Design-Builder Perspective
Provo River Constructors (PRC)
Provo Center Street

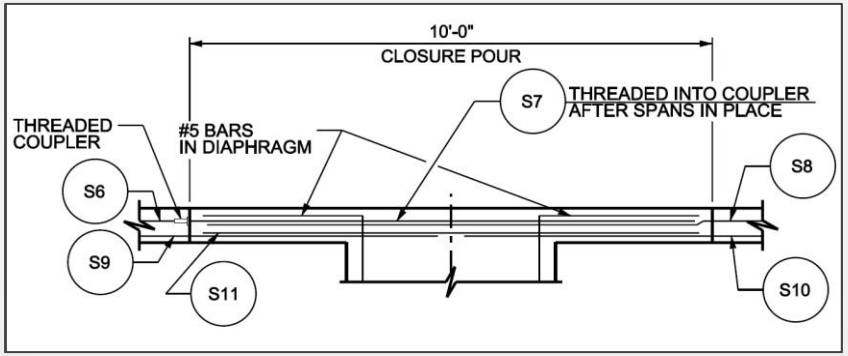
Cory Imhoff, P.E.; Structures Designer

Simple Span Made Continuous

- Continuity details
  - Similar to concrete girder detail
  - Allows for similar loading and unloading to the original design during future re-decking
  - Camber will be similar
  - Allows contractor some tolerance when setting girders in final location

Continuity Detail





Limiting Deflections

- Cross frame forces
  - Cross frames at the pick points control deflection
  - Maximum force in diagonals from roll-in deflections
- Deck and barrier cracking
  - Deflections held to cross frame limits (barrier and deck cracking stay within acceptable limits)